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HISTOGRAM ANALYSIS IMPROVES DIAGNOSTIC VALUE OF 2D LONGITUDINAL STRAIN IN PATIENTS WITH CORONARY ARTERY DISEASE (CAD)

ACC Poster Contributions
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Longitudinal peak systolic strain (LPSS) was recently introduced as a sensitive parameter of left ventricular (LV) function and ischemic changes. We used a customized code to generate and analyze the histogram of 150 - 200 LPSS values (HLPSS) uniformly distributed along the entire LV wall. We assessed the predictive value of HLPSS vs. standard segmental LPSS analysis (SLPSS), according to which the minimally contracting segment is used, in the detection of CAD in patients (pts) with angina.

Methods: SLPSS and HLPSS were measured in 162 pts hospitalized with unstable angina that had coronary angiogram and 51 pts with low probability of CAD and normal stress echocardiography. SLPSS was assessed with AFI (automated function imaging). HLPSS was assessed in each pt and determining the utmost value of the 15% worst LPSS samples.

Results: 133 pts had significant CAD on coronary angiogram. The mean SLPSS was -8.3%±4 and -14%± 2.5 in pts with and without CAD, respectively (P<0.001). The LPSS of the worst 15% strains by HLPSS was -10%±4and -16.5%±2 in pts with and without CAD, respectively (p<0.001). The area under the ROC curve was 0.89 for SLPSS and 0.93 for HLPSS (Figure). The optimal cutoff for SLPSS and HLPSS analysis was -12.1% and -14.5%, respectively. The sensitivity was 79% and 85% and the specificity of 79% and 85%, respectively.

Conclusion: In pts hospitalized with unstable angina LPSS at rest was significantly lower in pts with CAD. The histogram analysis is a better predictor of CAD than standard segmental analysis. .